

# BGA Rework Station ZM-R6880T

## Instruction Manual



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# Chapter 1 - Preface

Shenzhen ZhuoMao Hi-tech Co., Ltd. is a high-technology company located in the western district of BaoAn. Thanks to its proximity to the international airport and container terminal, this part of the booming industrial city of Shenzhen is rich in modern business opportunities.

BGA repair turnkey solutions are the heart of ZhuoMao activities. A strong R&D team supports a dynamic workforce of over fifty people. A well established sales network and after sales service has built ZhuoMao a strong reputation in China among high profile customers.

The main products of ZhuoMao are BGA Rework Station and some other devices (BGA Mounter, BGA Reballing Machine, and BGA Soldering Machine), BGA Testing Machine (main board testing, video card testing, digital camera testing, and mobile chip testing)

Devoted to put in practice the motto “Specialized, Innovative and Dedicated”, the company is focused on its customer’s satisfaction and has set up a network of local offices to tailor its offer to an expanding market.

Developing new solutions to help customers tackle issues always more diverse and complex keeps ZhuoMao engineering teams to the forefront of the technology and rewards its products with the most prestigious awards and recognition in China and abroad.

Because ZhuoMao understands BGA repair is a critical activity needing speed, accuracy and user-friendliness, its machines are designed for you to **REGAIN SATISFACTION**.

The manufacturer thinks of you

Because there is nothing more important for the manufacturer than you, and as we are always striving to offer you the best possible service. We have come up with this instruction hand book to make you more familiar with your REWORK STATION. READ IT CAREFULLY, for it will enable you to get the most out of your equipment and the functions which it has been designed to carry out, in addition to preventing any possible problems and malfunctions which could arise out of not having read this.

Familiarize yourself with your rework station

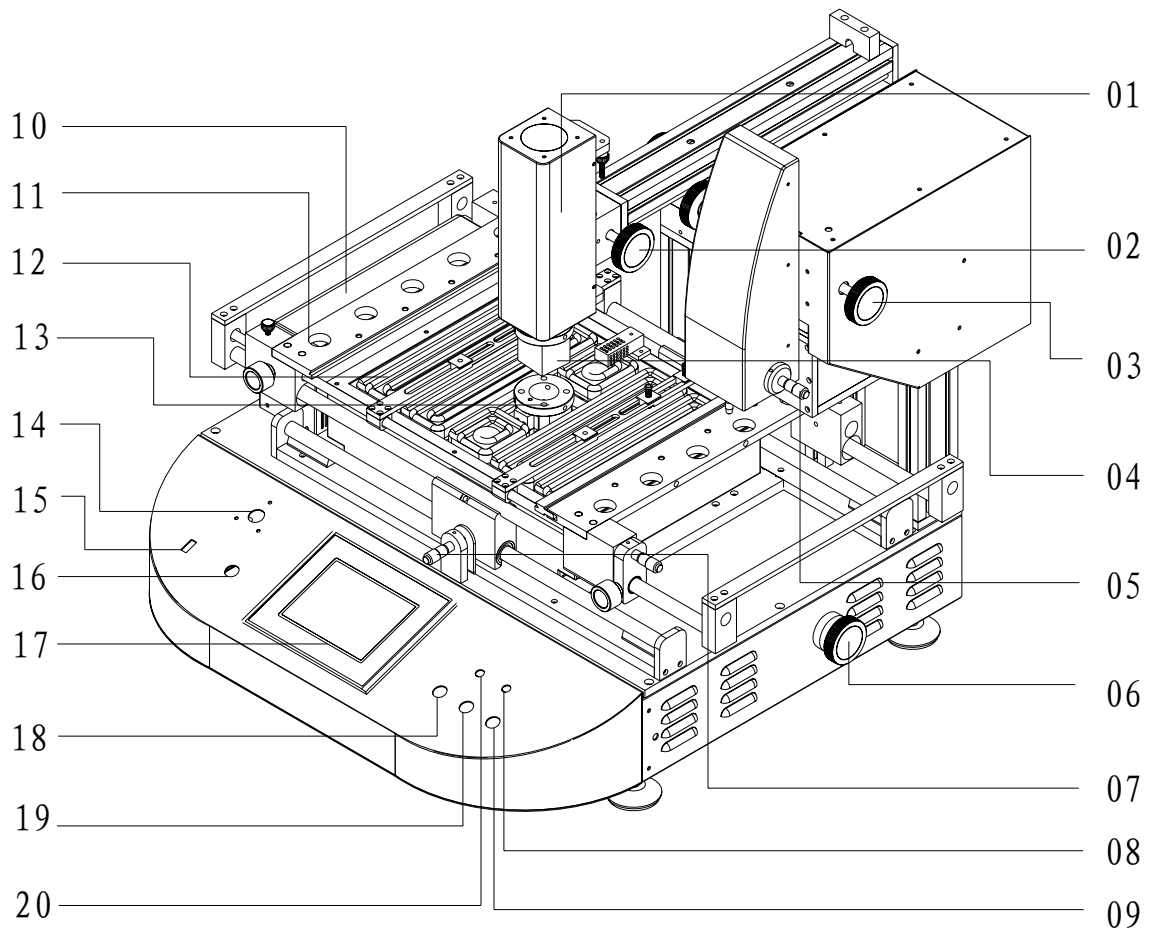
The first thing that you should do is to learn everything about your machine. In the section Overview of this instruction hand book you will find illustrations. We should advise you to pay attention to them, they will undoubtably help you to understand the commentary and to get a clear picture of all of the elements which make up your equipment.

## Chapter 2 – Packing list

Upon reception of your Rework Station ZM-R6880T, please ensure you find the following items:

NO.	Item	Specification	Unit	Qty
1	BGA Rework Station	ZM-R6880T	SET	1
2	Vaccum sucker		PC	2
3	Hot-air nozzle		PC	4
4	Temperature sensor		PC	1
5	Power cable		PC	1
6	Instruction manual	ZM-R6880T	Copy	1
7	Monitor		SET	1
8	Operation handle		PC	1
9	Tool box		PC	1

## Chapter 3 – Overview



No.	Name	FUNCTION	OPERATION
1	UPPER HEATER	HEAT BGA FROM TOP	ADJUST Z-AXIS
2	UPPER HEATER Z-AXIS ADJUST	ADJUST HEIGHT OF UPPER HEATER	SPIN LEFT AND RIGHT
3	BGA SUCKER UP/DOWN ADJUST	ADJUST HEIGHT OF SUCKER	SPIN LEFT AND RIGHT
4	UPPER HOT-AIR NOZZLE	GATHER THE HEAT ON BGA	ADJUST IT TO THE SURFACE OF BGA
5	BGA THETA ANGLE ADJUST	ADJUST BGA THETA ANGLE	
6	BOTTOM HOT-AIR HEATER HEIGHT ADJUST	ADJUST HEIGHT OF BOTTOM HEATER	
7	Y-AXIS ADJUST	ADJUST PCB IN/OUT	SPIN LEFT AND RIGHT
8	LOWER CAMEARA ADJUST	ADJUST BRIGHTNESS OF LED	
9	EMERGENCY STOP	STOP THE MACHINE WHILE EMERGENCY	

10	CROSS FLOW FAN	COOL PCB AFTER HEATING	
11	PCB SUPPORTER	SUPPORT PCB	
12	BOTTOM INFRARED HEATER	PREHEAT FROM BOTTOM	
13	BOTTOM HOT-AIR HEATER	HEATER BGA FROM BOTTOM	
14	TOP AIR FLOW ADJUST	ADJUST TOP AIR FLOW	SPIN LEFT AND RIGHT
15	TEMP SENSOR INTERFACE	DETECT TEMP	USE A SENSOR CABLE TO PLUG IN
16	LIGHT	TURN ON THE LIGHT	
17	TOUCH SCREEN	SAVE INFORMATION, CONTROL THE WHOLE MACHINE	
18	START	START THE WHOLE MACHINE	
19	VACUUM	PICK UP BGA	
20	UPPER CAMEARA ADJUST	ADJUST BRIGHTNESS OF LED	

## Chapter 4 – Specifications

Specifications	Description
Top heater	Hot air: 800W
Bottom heater	Infrared plates: 1200W - Central nozzle:3000W
Temperature control	Imported K-type thermocouple (Closed Loop) $\pm 3-5^{\circ}\text{C}$
PCB size	Max: 650×600mm                      Min: 22*22mm
PCB magnification	10x-100x
Vision	15 ” monitor coupled with high resolution CCD
Positioning	Camera
Power required	V-clip PCB damping / X-Y table adjust
Machine	Single phase AC 220V( $\pm 10\%$ ) / 50 Hz / 5 KW
Dimensions	L850×W680×H700mm
Weight	75kg

## **Chapter 5 - Installation**

In order to ensure the validity of BGA Rework Station, the installation should meet the following requirements.

1. Away from inflammable and explosives;
2. Away from water and other liquids;
3. Ventilated, dry place;
4. Stable and flat, free from tremor.
5. Less dust;
6. No heavy objects on the controlling box;
7. Not affected by airflow of air conditioner, heater or ventilator.
8. Leave a space of 30cm or more behind the rework station for the upper part to move and rotate.
9. Because the machine is equipped with a optical device, it must be put on the big platform to make sure it will never move from side to side.



## Chapter 6 - Operations

### 1. Set the program.

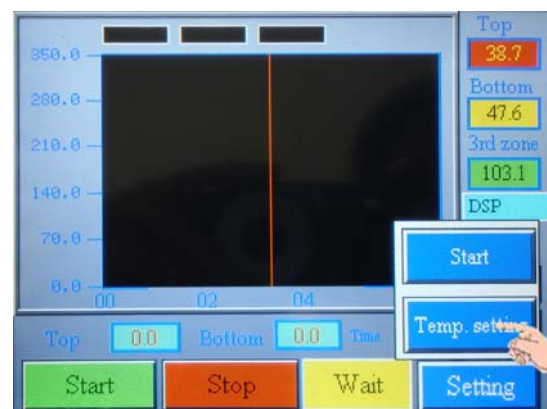
- a. Turn on the electric power supply of the whole machine. The following image will appear on the touch-screen. (The original password is 8888)



- b. Click "Ent".



- c. Click "Setting", and then "Temp. setting".



- d. Input the proper temperature parameters.

	Preheat	Keep Warm	Rise	Soldering 1	Soldering 2	Down
Top	165.0	195.0	225.0	245.0	258.0	0.0
Time	30	30	30	45	60	0
Bottom	165.0	195.0	225.0	235.0	245.0	0.0
Time	30	30	30	45	100	0
Slope	3.0	3.0	3.0	3.0	3.0	0.0
IR	180.0	Alarm time	3	Cool time	20	
2		Group Name DSP			Alarm in advance	2
Save		+	Select	-		Name Back

Introduction of the interface (take the above one for example):

**Preheat:** The temperature of upper and lower heater rises from room temperature to 165°C in 30s at a speed of 3°C/s (the slope).

**Keep warm:** The temperature of upper and lower heater rises 165°C to 195°C in 30s at a speed of 3°C/s (the slope).

**Calefactive:** The temperature of upper and lower heater rises 195°C to 225°C in 30s at a speed of 3°C/s (the slope).

**Jointing:** The temperature of upper heater rises 225°C to 245°C in 45s at a speed of 3°C/s (the slope).

The temperature of lower heater rises 215°C to 230°C in 45s at a speed of 3°C/s (the slope).

And so forth……

**Alarm time:** the time of the alarming.

**Alarm in advance:** the time between finishing the heating process and starting alarming.

**Cool time:** the time the cross-flow fan works.



The following are the temperatures for reference

### Lead BGA temperature curve welding

1. Upper temperature curve adjustment, nozzle 41\*41. Press SET to adjust.
 

r1:3.00	L1:160	d1:30
r2:3.00	L2:185	d2:30
r3:3.00	L3:230	d3:45
r4:3.00	L4:240	d4:25
r5:3.00	L5:225	d5:25
2. Upper temperature curve adjustment, nozzle 38\*38. Press SET to adjust.
 

r1:3.00	L1:160	d1:30
r2:3.00	L2:185	d2:30
r3:3.00	L3:225	d3:45
r4:3.00	L4:240	d4:25
r5:3.00	L5:225	d5:25
3. Upper temperature curve adjustment, nozzle 31\*31. Press SET to adjust.
 

r1:3.00	L1:160	d1:30
r2:3.00	L2:185	d2:30
r3:3.00	L3:210	d3:45
r4:3.00	L4:225	d4:20
r5:3.00	L5:205	d5:25
4. Third temperature zone adjustment. Press SET for 5 seconds to adjust.
 

r1:2.00	L1:135	d1:30
r2:2.00	L2:165	d2:45
r3:2.00	L3:185	d3:240

### Lead-free BGA temperature curve welding

1. Upper temperature curve adjustment, nozzle 41\*41. Press SET to adjust.
 

r1:3.00	L1:165	d1:30
r2:3.00	L2:200	d2:30
r3:3.00	L3:245	d3:50
r4:3.00	L4:255	d4:35
2. Upper temperature curve adjustment, nozzle 38\*38. Press SET to adjust.
 

r1:3.00	L1:165	d1:30
r2:3.00	L2:195	d2:35
r3:3.00	L3:240	d3:45
r4:3.00	L4:250	d4:25

r5:3.00

L5:235

d5:25

r5:3.00

L5:230

d5:25

3. Upper temperature curve adjustment, nozzle 31\*31. Press SET to adjust.

r1:3.00

L1:165

d1:30

r2:3.00

L2:190

d2:30

r3:3.00

L3:235

d3:45

r4:3.00

L4:245

d4:20

r5:3.00

L5:225

d5:25

4. Third temperature zone adjustment. Press SET for 5 seconds to adjust.

r1:2.00

L1:135

d1:30

r2:2.00

L2:165

d2:45

r3:2.00

L3:185

d3:40

r4:2.00

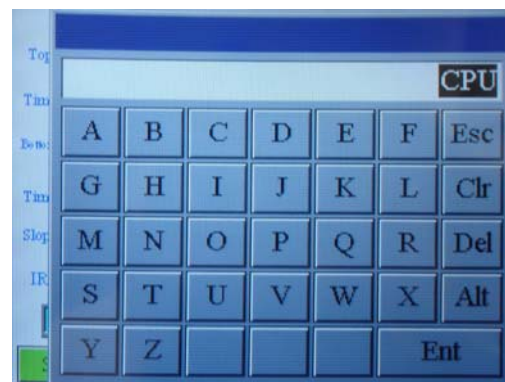
L3:210

d3:240

**No.:** Click the number before “Group”, input the number you want to name it by.

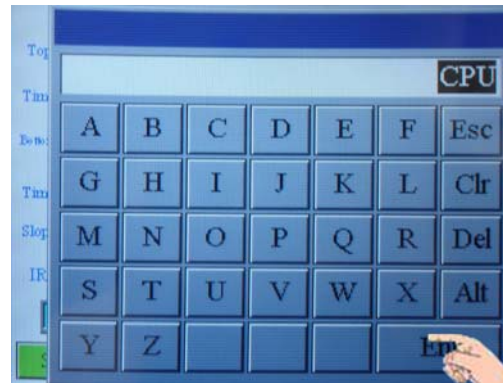
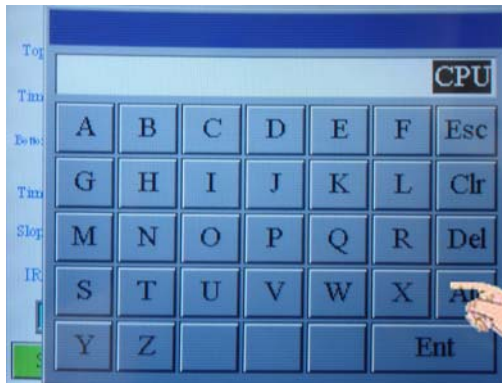


**Name:** Click “Name”, the input interface of name will appear, and you can set the name. Click “ENT” to the set interface.



If you want to name with number, you can click “Del” and “Alt”.





## 2. Operation

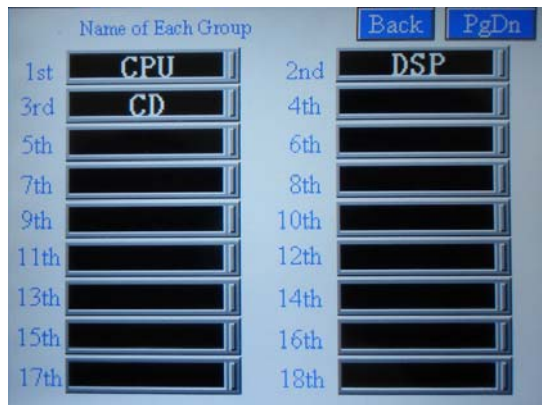
- a. Turn on the power supply of the machine, and click “Operation”.



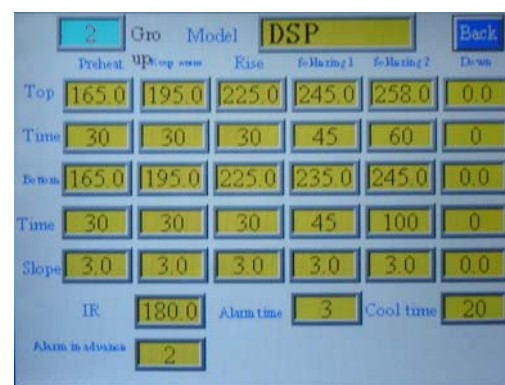
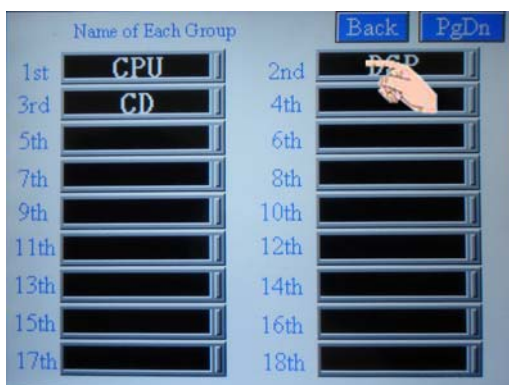
- b. Click “Setting” and “Temp. setting”.



- c. Choose the right group of temperature profile.



d. If you want to work with the 2<sup>nd</sup> group, click “DSP” The 2<sup>nd</sup> group of setting will appear, then click “Back”.



e. Then the following interface will appear on the screen.

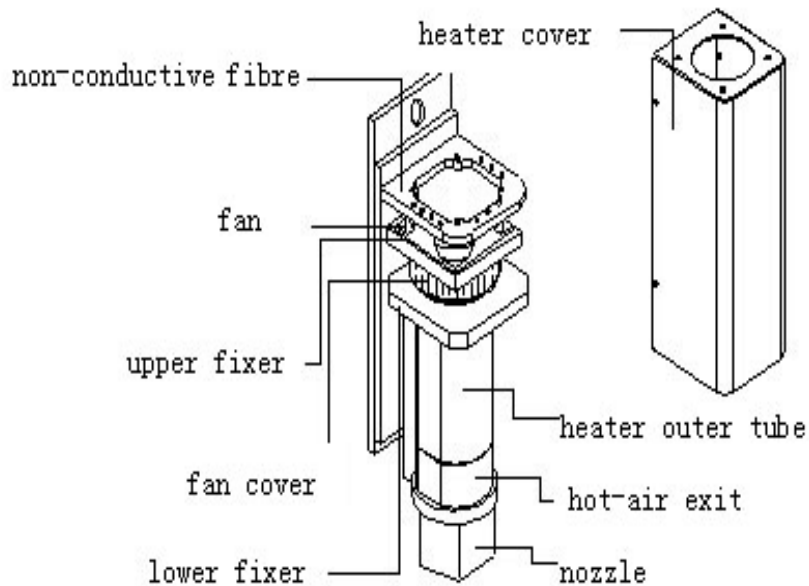


f. Fix the proper PCB and BGA as shown in the picture. Move the heater down to above the BGA, keeping a distance of 3-5mm between the bottom edge of the nozzle and the surface of BGA, as shown in the following picture. When the solder process is finished, there will be an alarming.



## Chapter 7 - Maintenance

### 7.1. Structure of top heater:

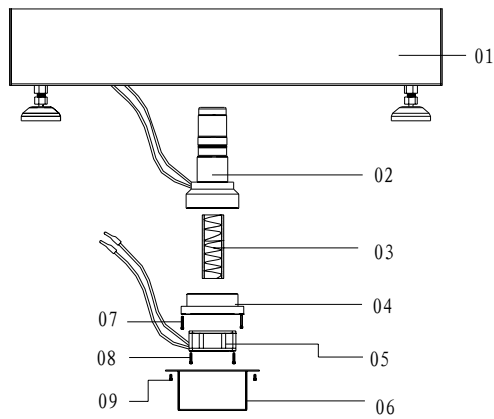


### Replace of top heater:

1. Turn off the power supply, wait until the machine is cool down.
2. Remove the screws of the upper cover, take out the heater and fixer.

### 7.2. Structure of bottom hot-air heater.



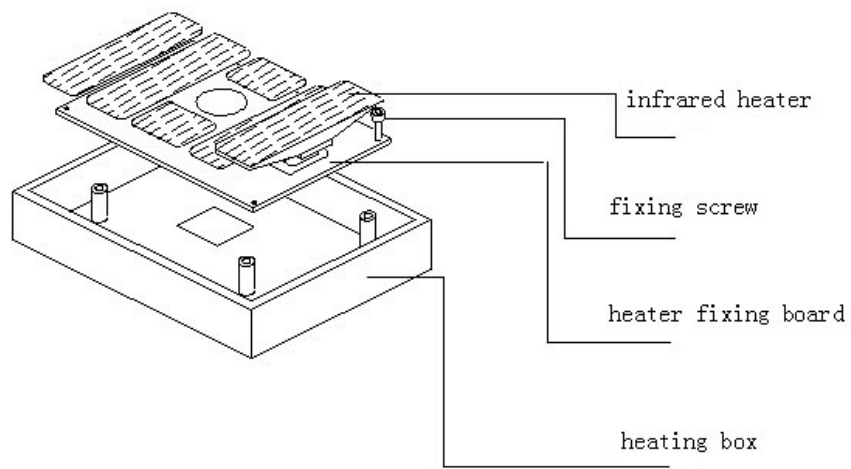


- |    |                         |    |              |
|----|-------------------------|----|--------------|
| 01 | Bodypart of the machine | 02 | Heating tube |
| 03 | Heater                  | 04 | Fan fixture  |
| 05 | Fan                     | 06 | Heater cover |
| 07 | Fan fixture screw       | 08 | Fan screw    |
| 09 | Heater cover screw      |    |              |

### **Replace of bottom hot-air heater:**

- 1. Remove the screws of the bottom cover, take out the cover.**
- 2. Remove the fan and take out the heater.**

### **7.3. Structure of bottom infrared heater**



**Replacement of the bottom infrared heater:**

- 1. Remove the 4 screws, take out the fixer the heater. And put them on the table very gently.**
- 2. Make sure that the inside of the heater box is clean. Change for a new heater,and fix it. .**